

Supplement to Invention Application Shaver-Cleaner 05818

The incentive for development of this ratchet changeover was the desire to reduce the size of the cleaner-drive concept for the fan and pump and make it cheaper. Since both have a similar power demand but never have to run simultaneously, it was obvious to use only one motor for both functions. A simple possibility for automatic control is reversal of direction of rotation, which is used here to alternately drive the fan or the pump.

The method of function is as follows (cf. Figures 1-3): the motor (1) drives the pressed-on drive flange (3) via the motor shaft (2). This carries the ratchet axes (4) for mounting the ratchets (5a and 5b). The operating state of right rotation at full speed is depicted. The ratchets (5a) in Figure 2 are engaged with the sawtooth mechanism (6) of the fan impeller (7) and the fan is functioning.

Figure 3 shows the simultaneous position of ratchets (5b) for the pump drive (10). They are disengaged because they are arranged in the opposite direction of rotation, i.e., disengaged from the sawtooth mechanism (11) with the right-rotating flange.

In order not to rattle continuously over the teeth tips of the sawtooth mechanism, according to the invention the ratchet mass is chosen with reference to the rotation point of the ratchet and the position of the ratchet in the rotation system in the raised position so that, at the prescribed speed of the system, a ratchet centrifugal force is established that raises the ratchets against the pressure force of spring (8) from the sawtooth mechanism to a stop (9) on the flange. This support persists until the centrifugal force is reduced by reducing the speed far enough that the spring force overcomes it and the ratchets return to the engaged position. If the motor now runs in the opposite direction of rotation, the ratchets immediately snap into the sawtooth mechanism (11) so that the pump drive (10) is now functional, i.e., left-rotating.

The ratchets of the fan drive (cf. Figure 2) leave the engaged position in the sawtooth mechanism and enter the noiseless disengaged position by the action of centrifugal force in the manner just described.

In addition to the reasons of size and cost reduction mentioned at the outset, the concept also contributes to more acceptable motor loading: a motor can still comfortably furnish additional power for the minimal running time of the pump in comparison with that of the fan. An individual motor for the pump would necessarily be over-dimensioned.

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[see source for figure]

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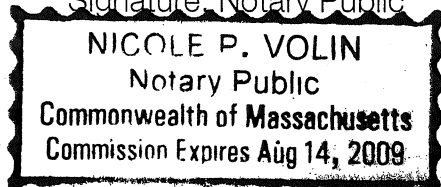
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